CSE370: Introduction to Digital Design
Winter 1999

Homework Set 2

DUE: Jan 22,1999, 12:30 pm

Please show *all* of your work. Solutions not involving DesignWorks do not have to be typeset, but may be if desired. In any case, your solutions must be legible.

1) Katz exercise 2.1 (d) and (e). Draw the schematics in DesignWorks, and turn in your drawings.

2) Katz exercise 2.3 (a) and (b).

3) Using the handout from section on floating point numbers, answer the following question. Using TABLE 6.7 from the handout as a guide, what is the smallest, nonzero, positive value that can be represented in the IEEE standard for single precision (i.e. 32 bit) numbers considering the following:
    a) Normalized values
    b) All possible values

4) Katz exercise 2.10 (e), (f), and (g).

5) Consider the function $f(A,B,C,D) = \sum m(0,1,2,7,8,9,10,15)$.
    a) Write the full Boolean expression represented by this equation.
    b) Write the equivalent maxterm representation in big-M notation.
    c) Write the complement of f in little-m notation.
    d) Write the complement of f in big-M notation.

6) Katz exercise 2.29 (a) and (b).

7) Katz exercise 2.28 (a) and (b).

8) Simplify the following function, using a Karnaugh map and assuming "X" represents don't care values:

A	B	C	D	F
0	0	0	0	1
0	0	0	1	X
0	0	1	0	1
0	0	1	1	0
0	1	0	0	1
0	1	0	1	1
0	1	1	0	0
0	1	1	1	0
1	0	0	0	1
1	0	0	1	1
1	0	1	0	1
1	0	1	1	X
1	1	0	0	0
1	1	0	1	0
1	1	1	0	X
1	1	1	1	0